

## THROUGH-PENETRATION FIRESTOP SYSTEM DETAILS

T RATING - 0 HR L RATING AT AMBIENT - 2 CFM/SQ FT (SEE ITEM 4) L RATING AT 400 F - LESS THAN 1 CFM/SQ FT (SEE ITEM 4)

SYSTEM NO. CAJ1044

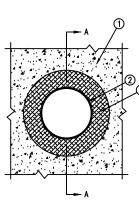
1. FLOOR WALL ASSEMBLY-LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. EXCEPT AS NOTED IN TABLE UNDER ITEM 4, MIN THICKNESS OF SOLID CONCRETE FLOOR OR WALL ASSEMBLY IS 4-1/2 IN. FLOOR MAY ALSO BE CONSTRUCTED OF ANY MIN 6 IN. THICK UL CLASSIFIED HOLLOW-CORE. PRECOAT CONCRETE UNITS. WHEN FLOOR IS CONSTRUCTED OF HOLLOW-CORE PRECOAT CONCETE UNITS, PACKING MATERIALS (ITEM 3) AND CAULK FILL MATERIAL (ITEM 4) TO BE INSTALLED SYMETRYCALLY ON BOTH SIDES OF THE FLOOR, FLUSH WITH FLOOR SURFACE. WALL ASSEMBLY MAY ALSO BE CONSTRUCTED OF CLASSIFIED CONCRETE BLOCKS. MAX DIA. OF OPENING IS 32 IN.

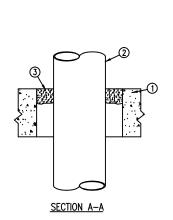
SEE CONCTRETE BLOCKS (CAZT) AND PRECAST CONCRETE UNITS (CFTV) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURER

SECTION A-A

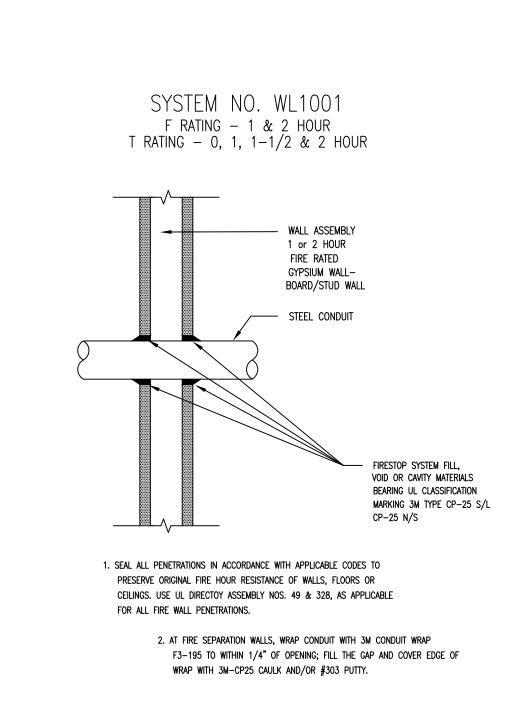
- 1A. STEEL SLEVE (OPTIONAL NOT SHOWN) NOM 16 IN. (OR SMALLER) SCHEDULE 10 (ORHEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY. SLEEVE MAY EXTEND A MAX OF 2 IN. ABOVE TOP FLOOR OR BEYOND EITHER SURFACE OF WALL.
- 2. PIPE OR CONDUIT NOM 30 IN.DIA. (OR SMALLER) CAST IRON OR SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 6 IN. DIA. (OR SMALLER) STEEL CONDUIT, NOM 3 IN. DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBE OR NOM 4 IN. DIA. (OR SMALLER) STEEL ELECTRICAL METALIC TUBING. MAX ANNU; AR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING NOT TO EXCEED 2 IM. MIN ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS 0 IN. (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDE OF FLOOR OR WALL ASSEMBLY.
- 3. PACKING MATERIAL POLYETHYLENE BACKER ROD OR NOM 1 IN. THICKNESS OF THIGHTLY—PACKRD MINERAL WOOL BATT OR GLASS FIBER INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OF FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4). 4. FILL, VOID OR CAVITY MATERIAL — CAULK — APPLIED TO FILL THE ANNULAR SPACE FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED CAULK THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL, FLUSH WITH WALL SURFACE. THE HOURLY F RATING AND THE MIN REQUIRED CAULK THICKNESS ARE DEPENDENT UPON A NUMBER OF PARAMETERS, AS SHOWN ON THE FOLLOWING TABLE. TUBE OR CONDUIT
- (a) MIN 2 IN THICKNESS OF MINERAL—WOOL BATT INSULATION REQUIRED IN ANNULAR SPACE. (b) MIN 1 IN. THICKNESS OF MINERAL—WOOL BATT INSULATION REQUIRED IN ANNULAR SPACE ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. MIN 1IN. THICKNESS OF CAULK TO BE INSTALLED FLUSH WITH EACH SURFACE FLOOR OR WALL ASSEMBLY. MINNESOTA MINING & MANUKACTURING CO - TYPES CP-25 WB, CP-25 WB+. (NOTE: L RATING AND OR USE OF OPTIONAL SLEEVE APPLY ONLY WHEN TYPE CP-25WB+ CAULK IS USED).

SYSTEM NO. CAJ1027 F RATING - 3 HOUR T RATING - 0 HOUR





- 1. FLOOR OR WALL ASSEMBLY MIN 4-1/2 IN. THICK LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE.
  WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX THROUGH OPENING SIZE
- SEE CONCRETE BLOCKS (CAZT) CATEGORY IN FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS. 2. PIPE OR CONDUIT - NOM. 10 IN. DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 6 IN. DIA. (OR SMALLER) RIGID STEEL CONDUIT, NOM 4 IN. DIA. (OR SMALLER) SCHEDULE 10 (OR HEAVIER) SIEEL PIPE, NOM 6 IN. DIA. (OR SMALLER) RIGID STEEL CONDUIT, NOM 4 IN. DIA. (OR SMALLER) STEEL EMT OR NOM 3 IN. DIA. (OR SMALLER). TYPE L (OR HEAVIER) COPPER PIPE. MAX ONE PIPE OR CONDUIT PER THROUGH OPENING. MAX ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 3/4 IN. MIN ANULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF OPENING IS 0 IN. (POINT CONTACT). PIIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
- 3. FILL VOID OR CAVITY MATERIALS PUTTY—MOLDABLE PUTTY MATERIAL KNEEDED BY HAND AND APPLIED TO FILL ANNULAR SPACE TO A MIN DEPTH OF 1 IN FLUSH WITH TOP SURFACE OF FLOOR. IN WALL ASSEMBLIES, REQUIRED PUTTY THICKNESS TO BE INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL. MINNESOTA MINING & MFG. CO.- MPS-2+.
  \*BEARING THEUL CLASSIFICATION MARKING.



## DEVICE DESIGNATION LEGEND INITIATING DEVICES **EXAMPLES**: - DEVICE REFERENCE NUMBER - INITIATING ALD LOOP DESIGNATION DEVICE SYMBOL (SMOKE DETECTOR) AUDIBLE / VISUAL CIRCUITS: ← STROBE CANDELA RATING -1 ← DEVICE REFERENCE NUMBER - AUDIBLE/VISUAL CIRCUIT DESIGNATION DEVICE SYMBOL (HORN/STROBE)

FIRE ALARM SYSTEM FUNCTION CHART  SPECIAL NOTE:  REFER TO SHEET FA-13 FOR FUNCTIONS ASSOCIATED WITH THE HSSD SYSTEMS.	ANNUNCIATE EVENT AT FACU	FIRE SIGNAL TO LBNL RECEIVER	TROUBLE SIGNAL TO LBNL	SUPERVISORY SIGNAL TO LBNL	ERATE NOTIFICATION APPLIANCES	RECALL ELEVATOR PRIMARY FLOOR	RECALL ELEVATOR SECONDARY FLOOR	JPERATE ELEVATOR POWER SHUNT	SHUT DOWN HVAC FAN UNIT	OSE DOOR	OPEN DOOR	CLOSE FIRE/SMOKE DAMPER	CLOSE FUME HOOD SASH
SYSTEM EVENT		FI	TR	SU	ПР	RE	RE	dII	₩.	CL	П	깁	
FIRE CALL BOX	_	•			•								•
SMOKE DETECTOR		•			•								•
HEAT DETECTOR	_	•			•								•
PROTECTO WIRE	_	•			•								•
FIRE SPRINKLER WATERFLOW SWITCH	_	•			•								•
ELEVATOR LOBBY DETECTOR 1ST FLOOR		•			•	_	•						•
LOBBY DETECTOR REMAINING FLOORS		•			•	•							•
GENERAL SPOT HEAT DETECTOR	_	•			•								
ELEVATOR MACHINE RM SMOKE		•			•	•							
ELEVATOR MACHINE RM WATERFLOW ELEVATOR MACHINE RM HEAT DETECTOR		•			•			•					
HVAC DUCT SMOKE DETECTOR	_							•					•
FSD DUCT SMOKE DETECTOR									_			•	•
DETECTOR AT OPENING/DOOF										•	•		
VALVE POSITION SUPERVISORY SWITCH		+ •		•									
AC POWER FAILURE			•										
SYSTEM FAUL			•										
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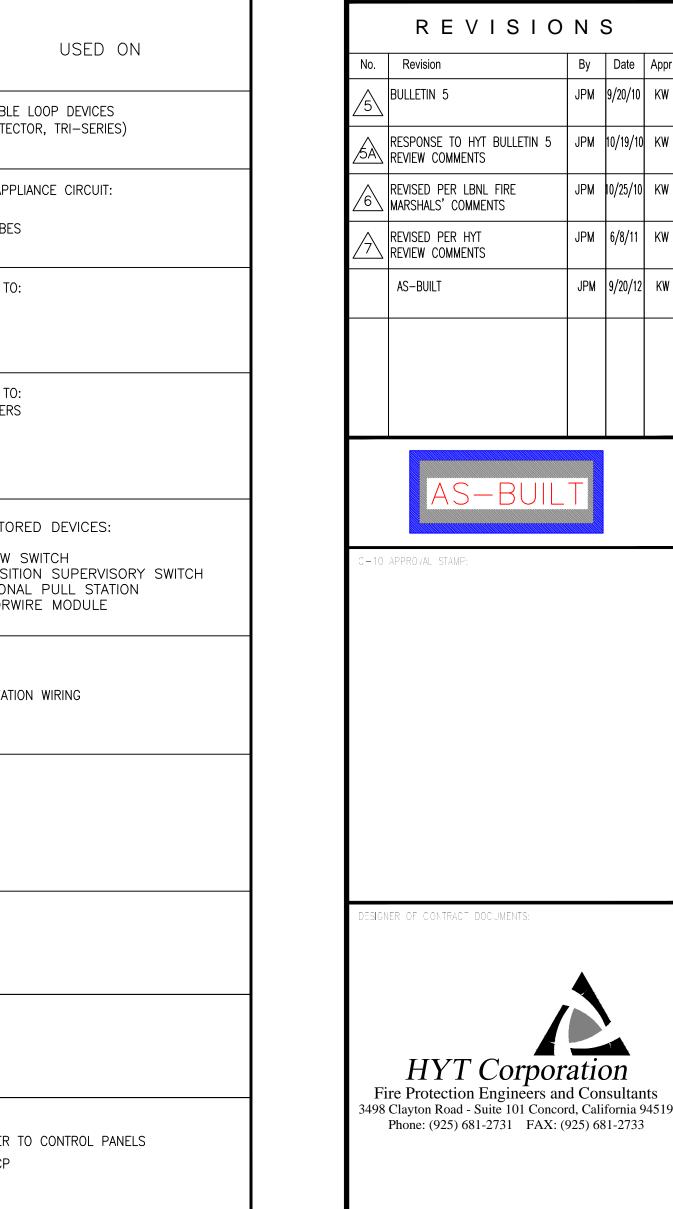
TYPICAL DEVICE ARRANGEMENT
FINISHED CEILING  6" MIN. STROBE OR WALL MOUNTED HORN/STROBE  HORN ONLY
90" MIN. WALL OR SURFACE WHERE CEILING WHERE POSSIBLE. 80" TO 96" HEIGHTS ALLOW)  FIRE  FIRE  FINISHED FLOOR

WIRING SCHEDULE						
WIRE SYMBOL	WIRE DESCRIPTION	USED ON				
L# ————————————————————————————————————	2-CONDUCTOR, #16 AWG SOLID, TWISTED, SHIELDED, TFN (+) RED, (-) BLACK	ALD ADDRESSABLE LOOP DEVICES (ie. SMOKE DETECTOR, TRI—SERIES)				
AV# 	2-CONDUCTOR, #14 AWG SOLID or STRANDED, THHN (+) WHITE, (-) BLACK	NOTIFICATION APPLIANCE CIRCUIT:  - STROBES  - HORN/STROBES				
E	2-CONDUCTOR, #14 AWG STRANDED, THHN (+) RED, (-) BLACK	24VDC POWER TO: - MOM-4				
D	2-CONDUCTOR, #14 AWG STRANDED, THHN (+) GRAY, (-) GRAY	24VDC POWER TO: - DOOR HOLDERS				
G 	2-CONDUCTOR, #16 AWG SOLID CABLE (+) RED, (-) BLUE (+) YEL, (-) YEL (+) RED, (-) BLUE	TRI to MONITORED DEVICES:  - WATERFLOW SWITCH - VALVE POSITION SUPERVISORY SWITCH - CONVENTIONAL PULL STATION - PROTECTORWIRE MODULE				
<u> </u>	2-CONDUCTOR, #14 AWG SOLID, THHN (+) WHITE, (-) BLACK	DSC MODULE:  - SYNCHRONIZATION WIRING				
HS ——	2-CONDUCTOR, #14 AWG SOLID, THHN (+) WHITE, (-) BLACK	HORN SILENCE				
—	2-CONDUCTOR WITH GROUND #12 AWG SOLID, THHN COLOR TO MATCH NEC	120 VAC POWER TO CONTROL PANELS - MXL FACP				

## WIRING NOTE:

- 1. WIRING FOR NOTIFICATION APPLIANCE CIRCUIT IS CLASS A, STYLE Z.
- 2. WIRING FOR INITIATING DEVICES IS CLASS A, STYLE E.
- 3. SEE WIRING GUIDELINES FOR CABLE TYPE USE.
- 4. CONDUIT FILL < 40%, 3/4" CONDUIT. 5. WHERE CIRCUIT ARE RUN UNDERGROUND, USE UNDERGROUND RATED CABLE.

NOTE: WIRE SIZES WILL VARY (USUALLY LARGER) TO ACCOMMODATE THE VOLTAGE DROP.



Novato, CA 94945 Tel (415) 898-1400 Fax (415) 898-5991

W. BRADLEY

ELECTRIC, INC.

90 Hill Road,

**HYT Corporation** 

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REVISIONS

RESPONSE TO HYT BULLETIN 5 JPM 10/19/10 KW

| JPM |9/20/10| KW

| JPM | 6/8/11 | KW

JPM 9/20/12 KW

SHALL BEAR THIS NOTICE.

6 MARSHALS' COMMENTS

AS-BUILT

REVIEW COMMENTS

SIGNER OF CONTRACT DOCUMENTS:

INSTALLATION CONTRACTORS NAME & ADDRESS:

25821 Industrial Boulevard, Suite 300 Hayward, California 94545-2991 Tel (510) 783-6000 Fax (510) 293-2100 California State C10 License No. 758796 U.L. Certificate ID No. 324787-001

OB NAME & LOCATION (STREET ADDRESS)

UNIVERSITY OF CALIFORNIA
LAWRENCE BERKELEY NATIONAL LABORATORY

BERKELEY LAB

FACILITIES DIVISION

BUILDING 74 FIRE ALARM

LBNL SEISMIC

PHASE 2

One Cyclotron Road, Berkeley, California 94720

NEW INSTALLATION

DESIGN/BUILD

☑ PER CONTRACT DOCUMENT

EXISTING BASE JOB # \_\_\_\_\_\_ OTHERS \_\_\_\_\_

YSTEM SALES REP.: Kevin Waxman AD FILENAME:

6N74E323

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